GE
159 Plastics Avenue
Pittsfield, MA 01201
USA

June 4, 2010

Dean Tagliaferro
EPA Project Manager
US Environmental Protection Agency
C/o Weston Solutions, Inc.
10 Lyman Street
Pittsfield, MA 01201

Re: Spring 2010 Re-Vegetation Monitoring Report
1 ½ Mile Reach Removal Action
GE-Pittsfield/Housatonic River Site, Pittsfield, MA

Dear Mr. Tagliaferro:

Please find enclosed GE's report entitled *Spring 2010 Re-Vegetation Monitoring Report* for the 1½ Mile Reach of the Housatonic River, which was prepared on GE's behalf by AMEC Earth & Environmental, Inc. This report documents the results of the 2010 qualitative monitoring assessment of riverbank and non-riverbank re-vegetation within the 1½ Mile Reach, which was conducted on May 4, 2010.

If you have any questions about this report or would like to discuss it further, please contact me at (413) 448-5910.

Very truly yours,

Kevin G. Mooney
Project Manager

Enclosure

cc: Tim Conway, EPA
Holly Inglis, EPA
Rose Howell, EPA*
Michael Gorski,, MA DEP (with CD of enclosure)
Eva Tor, MA DEP (with CD of enclosure)
John Ziegler, MA DEP (2 copies and 1 CD of enclosure)
Karen Pelto, MA DEP (Boston)

Nancy E. Harper, MA AG*
Ken Munney, US F&W
Susan Peterson, CT DEP
Linda Palmieri, WESTON
Izabela Zapisek, WESTON
Michael Carroll, GE*
Andrew Silfer, GE
Roderic McLaren, GE*
James Bieke, Goodwin Procter
Todd Cridge, ARCADIS
Charles Harman, AMEC
Phil Perhamus, AMEC
Public Information Repositories
GE Internal Repositories

* *Without enclosure*

Spring 2010 Re-Vegetation Monitoring Report

1½ Mile Reach of Housatonic River
General Electric (GE) – Pittsfield/Housatonic River Site
Pittsfield, MA

Prepared for

Corporate Environmental Programs
General Electric Company
159 Plastics Avenue
Pittsfield, MA 01201

Prepared by

AMEC Earth & Environmental, Inc.
285 Davidson Avenue, Suite 405
Somerset, NJ 08873

June 4, 2010

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1.0 INTRODUCTION

This Spring 2010 Re-vegetation Monitoring Report presents the results of the 2010 qualitative monitoring assessment of riverbank and non-riverbank re-vegetation within the 1½ Mile Reach of the Housatonic River, which is part of the General Electric (GE)–Pittsfield/Housatonic River Site (the Site). This report also presents the results of a quantitative monitoring assessment of riverbank and non-riverbank shrubs within the Phase 4 section (i.e., Fred Garner Park) of the 1½ Mile Reach, as discussed further below.

The re-vegetation activities were completed in 2007 following riverbank remediation within the 1½ Reach conducted by the United States Environmental Protection Agency (EPA). This monitoring assessment was conducted on May 4, 2010 and represents the spring portion of the third year of riverbank re-vegetation monitoring of the five-year monitoring period for the riverbanks in this reach of the Site, as well as the spring portion of the 2010 monitoring required for certain non-riverbank plantings. The requirements for this monitoring assessment and associated deliverables are presented in the Interim Post-Removal Site Control (PRSC) Plan for the 1½ Mile Reach (Weston, 2008).

1.1 Project Background

EPA conducted a Removal Action for the 1½ Mile Reach of the Housatonic River under the terms of the Consent Decree (CD) for the Site. This reach extends from the Lyman Street Bridge downstream to the confluence of the East and West Branches of the river (the Confluence). The 1½ Mile Reach Removal Action included the excavation and disposal of approximately 91,700 cubic yards (cy) of contaminated sediments and riverbank soil from this reach of the river, followed by the performance of restoration activities. Excavation activities were completed in March of 2006, and restoration and maintenance activities were completed in 2007.

In May 2008, EPA developed an Interim PRSC Plan to provide for the monitoring and maintenance of certain aspects of the remediation and restoration activities that were part of the 1½ Mile Reach Removal Action. These activities include, among other activities, monitoring and maintenance of re-vegetation in riverbank and non-riverbank areas, including control of

invasive species. Pursuant to the CD, GE carries out these activities under a cost-sharing arrangement with EPA.

1.2 Re-vegetation Monitoring Program

This report addresses monitoring of the vegetation planted as part of restoration activities. The re-vegetation monitoring effort assesses riverbank and non-riverbank plantings, tree cages, and invasive plant species. The re-vegetation monitoring involves two monitoring visits per year, one in May (spring monitoring visit) and the other in July (summer monitoring visit). The spring monitoring visit is qualitative in nature with the purpose of assessing plant conditions and plant survivorship and identifying segments of the planting areas where potential corrective actions or maintenance may be required. The summer monitoring visit is quantitative in nature with the purpose of assessing plant conditions; measuring plant survivorship, areal herbaceous vegetative cover, and invasive species cover; and assessing compliance with the Maintenance Standards in the Interim PRSC Plan.

Starting in 2009, the riverbank and non-riverbank shrubs located in the Phase 4 section of the 1½ Mile Reach (i.e. Fred Garner Park) have been counted during the spring monitoring visit. This was done because of the difficulty in accurately counting the shrubs in this area during the summer monitoring visit when the above-ground growth from surrounding herbaceous plants obscures the visibility of the shrubs.

In addition to the monitoring visits described above, GE initiated in 2008, in consultation with EPA, a comprehensive Tree Cage Maintenance Program, as well as an Invasive Species Control Program, along the entire 1½ Mile Reach.

The Tree Cage Maintenance Program is implemented in two phases over the course of the year. Prior to the emergence of new growth in the spring season, a walking review of the 1½ Mile Reach is performed, at which time repairs are made, as necessary, to damaged tree cages, broken or rotted support stakes are replaced, and some trees are pruned as required. Later in the growing season and continuing through the fall, periodic maintenance is performed as necessary.

The Invasive Species Control Program includes a walking survey prior to new growth in the spring, focused on noting the location of encroaching woody invasive plants normally hidden by late season heavy or tall herbaceous growth. Starting in the spring and continuing through the late season, the entire 1½ Mile Reach is inspected for invasive species approximately every two to four weeks depending on rainfall and seasonal growth patterns, and treatments of such species are applied as necessary during those inspections.

2.0 METHODS

The qualitative spring re-vegetation monitoring was conducted on May 4, 2010. As previously mentioned, the purpose of this monitoring visit was to assess plant conditions and plant survivorship and identify segments of the planting areas where potential corrective actions or maintenance may be required, and also to count the shrubs in the Phase 4 section of the 1½ Mile Reach. For purposes of the re-vegetation monitoring, the 1½ Mile Reach has been divided into four sub-reaches, commencing at the upstream end and delimited by the four bridge crossings in the 1½ Mile Reach, as shown on Figure 1:

- Phase 1 - Lyman Street Bridge to Elm Street Bridge
- Phase 2 - Elm Street Bridge to Dawes Avenue Bridge
- Phase 3 - Dawes Avenue Bridge to Pomeroy Avenue Bridge
- Phase 4 - Pomeroy Avenue Bridge to the Confluence

For the riverbanks, the Interim PRSC Plan designates each side of the river within each of these sub-reaches as an overall monitoring area, and it designates specific representative monitoring plots within each such area for more intensive, quantitative monitoring (Table 3-1 of the Interim PRSC Plan). The designated monitoring plots within the monitoring areas are shown, by sub-reach, on Figures 2 through 5. These figures also show the specific planting areas, which are designated by number. During the May 4, 2010 monitoring visit, the assessment of the riverbank re-vegetation was conducted using meander surveys in each overall monitoring area, with special attention to the specific monitoring plots. A meander survey involves traversing a study area on foot in a deliberate and sinuous manner to observe overall site conditions.

The assessment also qualitatively assessed certain non-riverbank plantings. Table 3-2 of the Interim PRSC Plan lists the properties where non-riverbank plantings are subject to monitoring as part of the 1½ Mile Reach. Monitoring at most of these properties has already been completed by EPA or GE. The only remaining non-riverbank plantings for which monitoring was required in 2010 were: (a) four trees at Parcel I8-24-1 in Phase 1 (which had either been replaced in 2008 or 2009 and/or had been found to be stressed in 2009); and (b) trees and shrubs at Parcel I7-1-101 (Fred Garner Park) in Phase 4. These properties are depicted on Figures 2 and 5.

During these surveys, the general characteristics of each riverbank monitoring area, as well as the non-riverbank plantings described above, were evaluated; and any exceptional characteristics, such as concentrations of dead or stressed plants, were noted. The surveys also (1) assessed whether the monitoring plots within each overall monitoring area are representative of the entire monitoring area, (2) included photo-documentation of the monitoring areas, (3) assessed the red-osier dogwood (***Cornus sericea***) band at the bottom of the re-vegetated slope along the entire length of the areas from Elm Street Bridge to the Confluence, (4) identified significant areas of bare soil, and (5) noted the need for any tree cage maintenance.

In addition, as noted above, a quantitative assessment (counting) was conducted of the shrubs in the riverbank monitoring plots in Phase 4 where shrubs had been planted and of the shrubs in the non-riverbank areas at Parcel I7-1-101 (Areas B, C/D, and E) where shrubs had been planted and shrub counts are required as part of the quantitative assessment.

The Interim PRSC Plan requires that a quantitative inspection of invasive plant species be conducted as part of the summer monitoring visit. Moreover, as described above, GE has initiated an ongoing Invasive Species Control Program. However, in addition to these efforts, based on field discussions between GE and EPA representatives, a qualitative assessment of invasive plant species was conducted during the spring 2010 monitoring visit as part of the meander survey. This qualitative assessment evaluated whether any additional invasive plant species should be added to the list presented in Appendix A of the Interim PRSC Plan, and whether any obvious problem areas require immediate attention.

3.0 RESULTS

Phil Perhamus of AMEC Earth & Environmental, Inc. conducted the qualitative assessment and the shrub counts during the spring 2010 monitoring visit. Also present during this visit were the following personnel:

- Dean Tagliaferro, EPA
- Izabela Zapisek, Weston Solutions
- Kevin Mooney, GE
- Chris Frank, C.L. Frank & Company
- Jeff LaCoy, C.L. Frank & Company

The weather during the monitoring visit was sunny, with an average air temperature of around 60°F. The observations made during this monitoring visit are presented below. They are grouped according to the four above-listed phases of the project area:

- Phase 1 - Lyman Street to Elm Street
- Phase 2 - Elm Street to Dawes Avenue
- Phase 3 - Dawes Avenue to Pomeroy Avenue
- Phase 4 - Pomeroy Avenue to the Confluence

Photographs of these areas are presented in **Appendix A** of this report.

3.1 Phase 1 – Lyman Street to Elm Street

The re-vegetation inspected in Phase 1 during the spring 2010 monitoring visit included the riverbank vegetation in that sub-reach and the four non-riverbank trees mentioned above at Parcel I8-24-1. The observations during this inspection were as follows:

1. Overall, despite some limited beaver (***Castor canadensis***) damage to trees, the planted riverbank vegetation in this sub-reach appears to be in very good condition, and the condition of the vegetation within the monitoring plots appears to be representative of the overall monitoring area.

2. Numerous volunteers above, below, and within the rip-rap were observed throughout this sub-reach.
3. The need for installation of tree cages was identified for some of the large volunteers along the western shoreline in the area between Monitoring Plot 1-W-1 and 1-W-2 (i.e., upstream of the Silver Lake outfall).
4. The inspection also indicated that some of the tree cages in this sub-reach need to be opened up and widened because of increasing tree diameters.
5. The riverbank vegetation in the sections downstream of Monitoring Plot 1-W-2 has improved dramatically from last year based on the large number of tree volunteers and the increase in height and cover of both trees and shrubs.
6. The riverbank vegetation along eastern shoreline of this sub-reach has also improved dramatically from last year, exhibiting numerous eastern cottonwood and box elder volunteers, as well as a very healthy red-osier dogwood band along the lower shoreline.
7. A preliminary examination of the four trees on Parcel I8-24-1 that were scheduled for assessment in 2010 produced the following findings:
    a. In 2009, a red maple that had been planted to replace a dead oak in 2008 was found to be stressed. That red maple was observed to be healthy in spring 2010.
    b. In 2009, a sugar maple that had been planted to replace a dead oak in 2008 was found to be stressed. That sugar maple still appeared to be stressed in spring 2010.
    c. In 2009, a white oak was planted to replace a dead white ash. That new white oak was observed to be healthy in spring.
    d. In 2009, another white ash was observed to be stressed. That white ash was observed to be dead in spring 2010.

3.2 Phase 2 – Elm Street to Dawes Avenue

The observations of the riverbank vegetation in Phase 2 showed the following:

1. The planted riverbank vegetation in this sub-reach appears to be in very good condition, and the condition of the vegetation within the monitoring plots appears to be representative of the overall monitoring area.
2. Numerous volunteers above, below, and within the rip-rap were observed throughout this sub-reach.

3. The following vegetation has improved dramatically from last year as described:
   a. The plantings in areas upstream and downstream of Monitoring Plot 2-W-1 are exhibiting notable increases in height and cover
   b. The plantings in the area between Monitoring Plots 2-E-1 and 2-E-2 are exhibiting notable increases in height and cover
   c. The trees within Monitoring Plot 2-E-1 are exhibiting notable increases in diameter.

3.3 Phase 3 – Dawes Avenue to Pomeroy Avenue

The observations of the riverbank vegetation in Phase 3 showed the following:

1. Overall, despite some areas of concern discussed below, the planted riverbank vegetation in this sub-reach appears to be in good condition, and the condition of the vegetation within the monitoring plots appears to be representative of the overall monitoring area.
2. Numerous volunteers above, below, and within the rip-rap were observed throughout the sub-reach, particularly upstream of Monitoring Plot 3-E-2 where a large number of silver maple volunteers were noted.
3. The following areas or issues of concern were noted in this sub-reach:
   a. Numerous specimens of northern arrowwood appear to be exhibiting an aphid infestation.
   b. The growth of riverbank vegetation located upstream and downstream of Monitoring Plot 3-E-2 appears to be slower than desired.
   c. Small bare spots on the ground surface within Monitoring Plot 3-W-3 were noted.
   d. At least six trees were hand-cut in Planting Area 31, presumably by the landowner.

3.4 Phase 4 – Pomeroy Avenue to the Confluence

The qualitative inspection in Phase 4 included the riverbank vegetation and the non-riverbank plantings at Parcel I7-1-101 (Fred Garner Park). In addition, the inspection included a quantitative count of the shrubs in the Phase 4 riverbank monitoring plots and in the non-riverbank areas at Parcel I7-1-101 (Areas B, C/D, and E) where shrubs had been planted. The results of these activities were as follows:

1. The planted riverbank vegetation in this sub-reach appears to be in good condition, and the condition of the vegetation within the monitoring plots appears to be representative of the overall monitoring area.
2. Numerous volunteers above, below, and within the rip-rap were observed throughout the sub-reach.
3. The red-osier dogwood band along the eastern shoreline was noted as looking particularly healthy.
4. The qualitative assessment of the non-riverbank trees and shrubs at Parcel I7-1-101 indicated that those plantings were in good condition.
5. The shrub counts conducted during the spring monitoring visit, compared to the applicable survival standard of 80%, are summarized in the table on the following page. These data will be presented in the Summer Re-Vegetation Monitoring Report in greater detail, including a calculation of per-acre density for the shrubs in each riverbank area and comparison of that density to the target ("as-built") density to determine percent survivorship. The results are provided in this Spring Re-Vegetation Monitoring Report for preliminary review purposes. They indicate that the shrubs in each area assessed met the 80% survival standard.

Area Examined	Quantity Planted	Species	No. Needed to Meet 80% Survival	No. Counted	Met Criteria?
Riverbank Shrubs					
4-E-2	9	Various	8	8	Yes
4-E-3	9	Various	8	11	Yes
4-W-3	25	Various	20	29	Yes
Non-Riverbank Shrubs					
B	23	Silky Dogwood		33	
	23	Northern Arrowwood		5	
	23	Winterberry Holly		25	
	23	Choke Cherry		18	
	92	**Total**	74	81	Yes
C/D	17	Silky Dogwood		15	
	16	Northern Arrowwood		23	
	16	Winterberry Holly		22	
	16	Choke Cherry		13	
	65	**Total**	52	73	Yes
E	37	Silky Dogwood		44	
	38	Northern Arrowwood		30	
	38	Winterberry Holly		23	
	38	Choke Cherry		32	
	151	**Total**	121	129	Yes

The field data sheets associated with the shrub counts are presented in Appendix B.

4.0 CONCLUSION

The results of the spring 2010 monitoring visit for the 1½ Mile Reach revealed that, despite a few areas of concern, the riverbank plantings in all the sub-reaches, as well as the non-riverbank plantings at Parcel I7-1-101, are exhibiting very good growth. This survey also indicated that the designated monitoring plots are representative of the overall monitoring areas that they were designed to represent. In addition, there were no obvious gaps in the red-osier dogwood band at the bottom of the re-vegetated slope, and there were no significant areas of bare soil observed (only a number of small areas were observed within Monitoring Plot 3-W-3). Numerous volunteer species above, below, and within the rip-rap were observed throughout the 1½ Mile Reach. With respect to the four non-riverbank trees assessed at Parcel I8-24-1, this monitoring visit indicated that two were healthy, one was stressed, and one was dead. The three living trees will be inspected again in the summer monitoring visit, and the dead tree will be replaced with a white oak specimen in the fall.

GE will continue its ongoing Invasive Species Control and Tree Cage Maintenance Programs in 2010 until the end of the growing season in October. The next monitoring visit (i.e., summer monitoring visit) is scheduled for July 2010 and will examine the monitoring plots quantitatively.

5.0 REFERENCES

Weston. 2008. Interim Post-Removal Site Control Plan, 1½-Mile Removal Reach, General Electric (GE)–Pittsfield/Housatonic River Site. Prepared by Weston Solutions for the U.S. Army Corps of Engineers and the U.S. Environmental Protection Agency. DCN: GE-051908-ADWJ. May 2008.

FIGURES

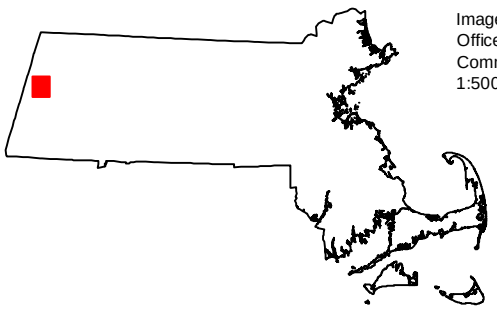

Image Source:
Office of Geographic and Environmental Information (MassGIS)
Commonwealth of Massachusetts Executive Office of Energy and Environmental Affairs
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amec Earth & Environmental

Figure 1
Study Area Location Map
1 ½ - Mile Reach of the Housatonic River
Revegetation Monitoring Report
Pittsfield, MA

Rev. By: PP	Contract No.: 7-7638-0000.0001	rev. 08-04-08

N
W
E
S

I9-4-201
I9-4-25
I9-4-203
I9-4-19
I9-4-14
I8-24-101
I8-24-1
I8-23-1
I8-23-2
I8-23-3
I8-23-4
I9-5-16
I9-5-15
I9-5-14
I9-5-13
I9-5-1
I9-5-2

PLANTING AREA #1
NEW SILVER LAKE OUTFALL
PLANTING AREA #2
PLANTING AREA #3
PLANTING AREA #4
PLANTING AREA #5
PLANTING AREA #6
PLANTING AREA #7
PLANTING AREA #8
PLANTING AREA #5A
PLANTING AREA #5

1-W-1
1-E-2
1-E-1
1-W-2
1-W-3
1-E-3

HOUSATONIC RIVER
Cove St.
Root Pl.
Lyman St.
Hathaway St.
Ashley St.
Day St.
Elm St.

HARRY'S SUPERMARKET
LAUNDROMAT

0 100 200 Meters

LEGEND

I9-4-19	PARCEL ID
	APPROXIMATE PROPERTY LINE
1-W-2	VEGETATIVE MONITORING PLOT ID
	VEGETATIVE MONITORING PLOT

Image Source:
Office of Geographic and Environmental Information (MassGIS)
Commonwealth of Massachusetts Executive Office of Energy and Environmental Affairs
1:5000 Color Ortho Imagery, 2005

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Figure 2
Phase 1 Study Area Location Map
1 ½ - Mile Reach of the Housatonic River
Revegetation Monitoring Report
Pittsfield, MA

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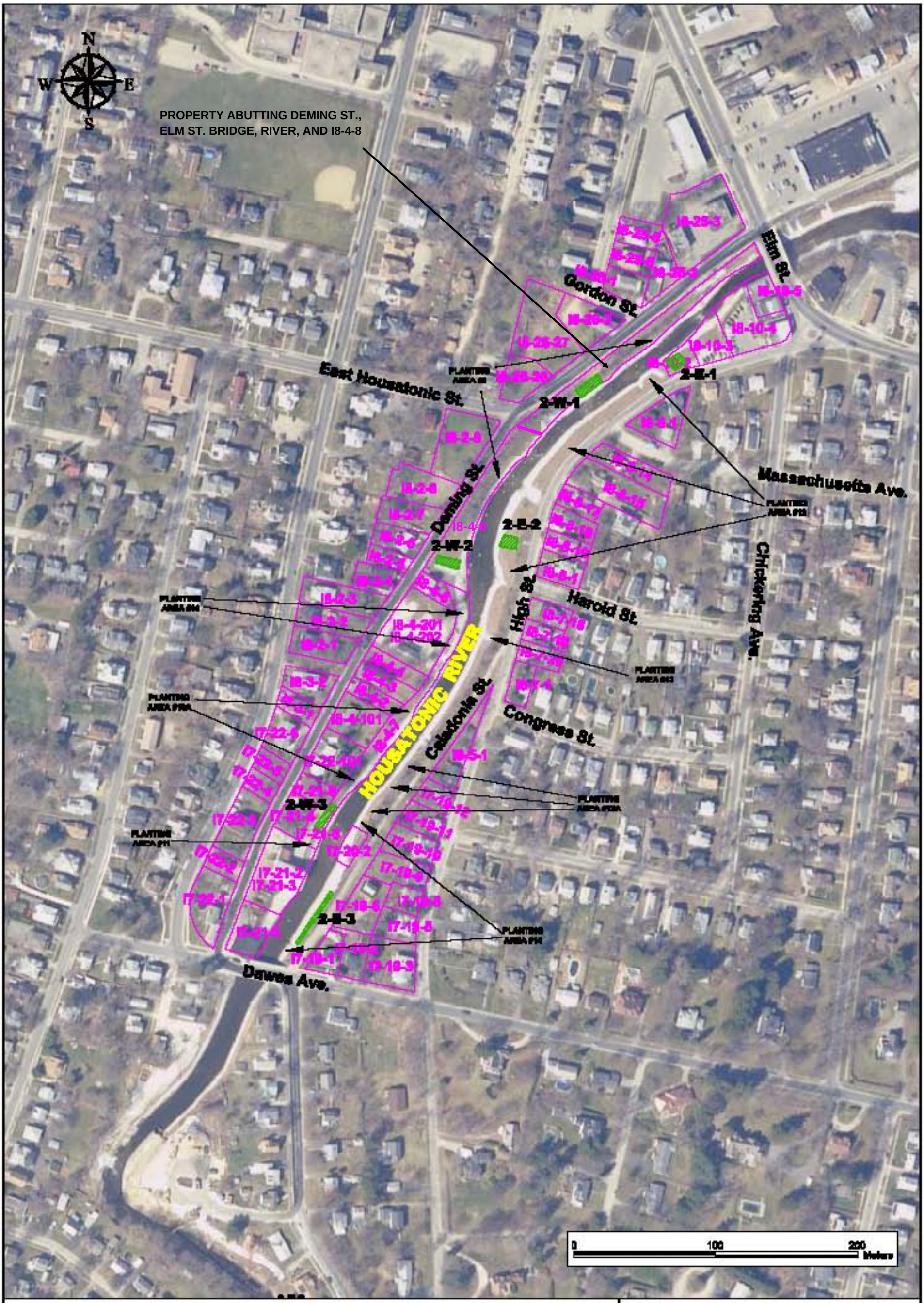

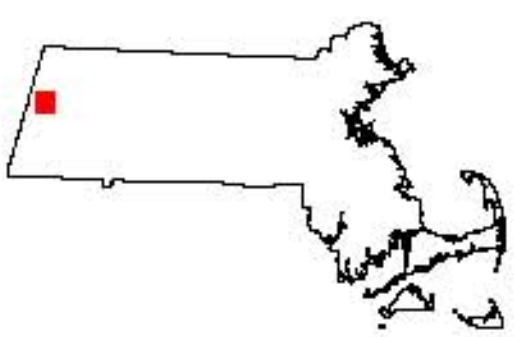

LEGEND

- B-4-19 — PARCEL ID
- APPROXIMATE PROPERTY LINE
- 1-W-1 — VEGETATIVE MONITORING PLOT ID
- VEGETATIVE MONITORING PLOT

Image Source:
Office of Geographic and Environmental Information (MassGIS)
Commonwealth of Massachusetts Executive Office of Energy and Environmental Affairs
1:5000 Color Ortho Imagery, 2008

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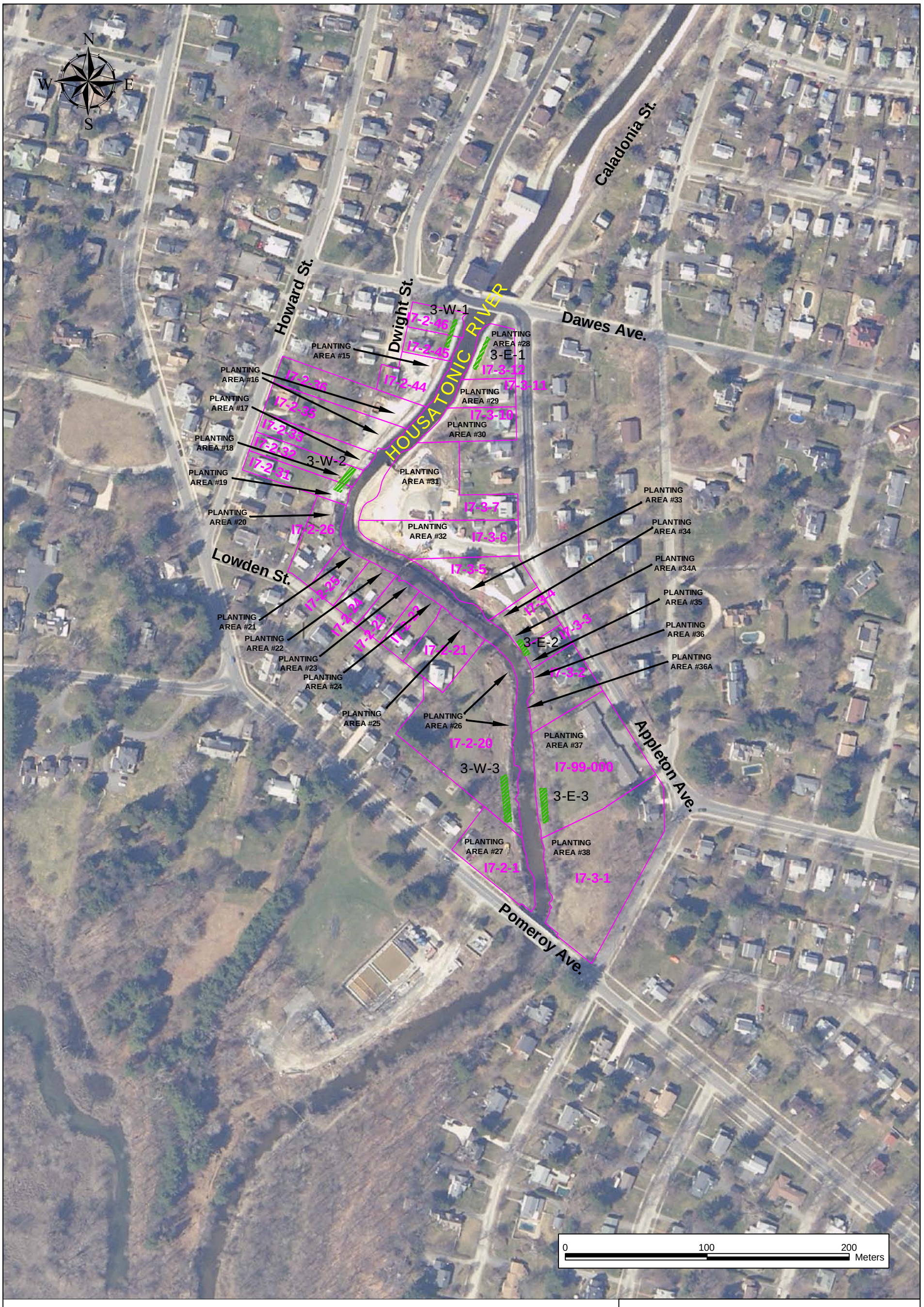
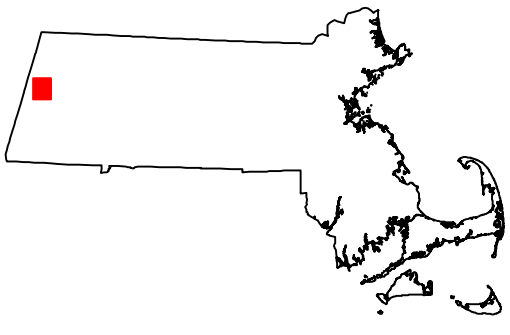
Figure 3
Phase 2 Study Area Location Map
12 - Mile Reach of the Housatonic River
Revegetation Monitoring Report
Pittsfield, MA

Rev. By: PP	Project No.: 17-999-000.0001	Rev. 05-05-09





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	APPROXIMATE PROPERTY LINE
1-W-2	VEGETATIVE MONITORING PLOT ID
	VEGETATIVE MONITORING PLOT

Image Source:
Office of Geographic and Environmental Information (MassGIS)
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Figure 4
Phase 3 Study Area Location Map
1 ½ - Mile Reach of the Housatonic River
Revegetation Monitoring Report
Pittsfield, MA

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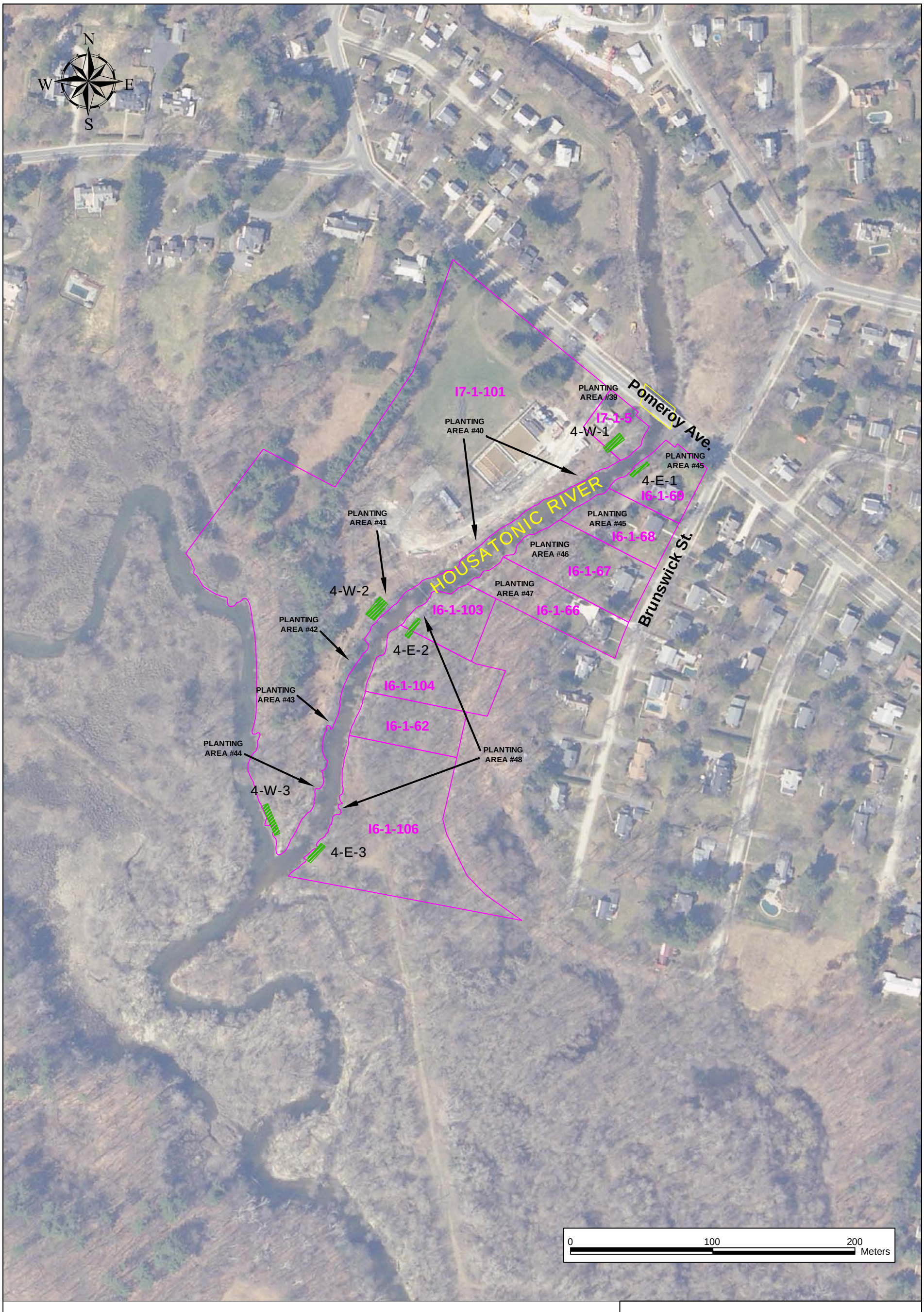

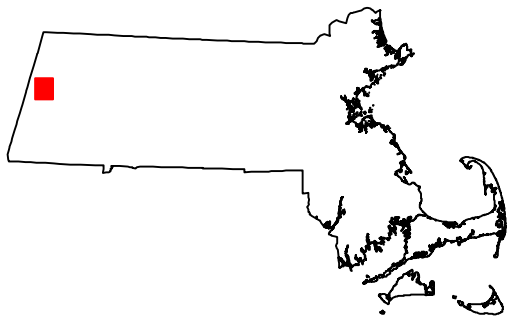

LEGEND

I9-4-19	PARCEL ID
	APPROXIMATE PROPERTY LINE
1-W-2	VEGETATIVE MONITORING PLOT ID
	VEGETATIVE MONITORING PLOT

Image Source:
Office of Geographic and Environmental Information (MassGIS)
Commonwealth of Massachusetts Executive Office of Energy and Environmental Affairs
1:5000 Color Ortho Imagery, 2005

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Figure 5
Phase 4 Study Area Location Map
1 ½ - Mile Reach of the Housatonic River
Revegetation Monitoring Report
Pittsfield, MA

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APPENDIX A

PHOTO-DOCUMENTATION

Phase 1

Lyman Street to Elm Street

Photo 1: Upstream of Monitoring Plot 1-W-1, facing upstream. The Lyman Street Bridge is visible in the background.

Photo 2: Monitoring Plot 1-W-1, facing downstream.

Photo 3: Between Monitoring Plot 1-W-1 and 1-W-2, facing downstream.

Photo 4: Monitoring Plot 1-W-2, facing upstream.

Photo 5: Example of three trees that may need to be pruned then caged.

Photo 6: Example of two trees that need to be caged.

Photo 7: Example of numerous first and second year eastern cottonwood volunteer saplings appearing within Parcel I8-24-1.

Photo 8: One of four trees monitored on Parcel I8-24-1. This red maple was considered to be healthy.

Photo 9: One of four trees monitored on Parcel I8-24-1. This sugar maple was considered to be stressed.

Photo 10: One of four trees monitored on Parcel I8-24-1. This white ash was considered to be dead.

Photo 11: One of four trees monitored on Parcel I8-24-1. This white oak, although not readily apparent in the photo, was considered to be healthy.

Photo 12: Between Monitoring Plots 1-W-2 and 1-W-3, facing upstream.

Photo 13: Monitoring Plot 1-W-3, facing upstream.

Photo 14: Downstream end of Phase 1, viewed from the Elm Street Bridge, facing upstream.

Photo 15: Between Elm Street Bridge and Monitoring Plot 1-E-3, facing downstream.

Photo 16: Monitoring Plot 1-E-3, facing downstream.

Photo 17: Between Monitoring Plots 1-E-3 and 1-E-2, facing downstream.

Photo 18: Between Monitoring Plots 1-E-2 and 1-E-1, facing upstream.

Photo 19: Monitoring Plot 1-E-1, viewed from the road crossing, facing downstream.

Photo 20: Phase 1, viewed from the Lyman Street Bridge, facing downstream.

Phase 2

Elm Street to Dawes Avenue

Photo 21: Between the Elm Street Bridge and Monitoring Plot 2-W-1, facing downstream.

Photo 22: Monitoring Plot 2-W-1, facing upstream.

Photo 23: Between Monitoring Plots 2-W-1 and 2-W-2, facing upstream.

Photo 24: Monitoring Plot 2-W-2.

Photo 25: Between Monitoring Plots 2-W-2 and 2-W-3, facing downstream.

Photo 26: Monitoring Plot 2-W-3, facing upstream.

Photo 27: Between Monitoring Plot 2-W-3 and the Dawes Avenue Bridge, facing downstream.

Photo 28: Monitoring Plot 2-E-1, facing upstream.

Photo 29: Between Monitoring Plots 2-E-1 and 2-E-2, facing downstream.

Photo 30: Between Monitoring Plots 2-E-2 and 2-E-3, facing downstream.

Phase 3

Dawes Avenue to Pomeroy Avenue

Photo 31: Monitoring Plot 3-W-1, facing upstream.

Photo 32: Between Monitoring Plots 3-W-1 and 3-W-2, facing downstream.

Photo 33: Monitoring Plot 3-W-2, facing upstream.

Photo 34: Between Monitoring Plots 3-W-2 and 3-W-3 (on left-hand side of photo), facing upstream.

Photo 35: Monitoring Plot 3-W-3, facing downstream. The Pomeroy Avenue Bridge is visible in the background.

Photo 36: Downstream end of Phase 3, viewed from the Pomeroy Avenue Bridge, facing upstream.

Photo 37: Between the Pomeroy Avenue Bridge and Monitoring Plot 3-E-3, facing upstream.

Photo 38: Monitoring Plot 3-E-3, facing downstream.

Photo 39: Between Monitoring Plots 3-E-3 and 3-E-2, facing downstream.

Photo 40: Monitoring Plot 3-E-2, facing downstream.

Photo 41: Monitoring Plot 3-E-1, facing upstream. The Dawes Avenue bridge is in the background.

Phase 4

Pomeroy Avenue to the Confluence

Photo 42: Area B, evaluated for shrubs during the Spring 2010 monitoring visit.

Photo 43: Area C/D, evaluated for shrubs during the Spring 2010 monitoring visit.

Photo 44: Monitoring Plot 4-W-3, facing upstream.

Photo 45: Between Monitoring Plots 4-W-1 and 4-W-2, facing downstream.

Photo 46: Monitoring Plot 4-W-1, facing downstream.

Photo 47: Monitoring Plot 4-E-1 (background) and area between 4-E-1 and 4-E-2 (foreground), facing upstream.

Photo 48: Area between Monitoring Plot 4-E-2 and 4-E-3, facing downstream.

APPENDIX B

SHRUB COUNT FIELD DATA SHEETS

RIVERBANK, RE-VEGETATION MONITORING FIELD FORM

1.5 Mile Reach, GE/Housatonic River Site, Pittsfield, MA Page 23 of 24

Observer(s): 5/4/10 = Perhamus, Zapisek, Taglianetti, Frank, LaCoy Date: 5/4/10

Phase: 4 Flow @ Coltsville (cfs)_____ Weather: Sunny, ~75°F ← 5/4/10

Planting Area Location: 48

Riverbank Length (ft): _____ Avg width (ft): _____

Planting Area (sf): 8,059 10-20% Area (sf): _____

Comments:

Random Sample Location Number: 4-E-2 Riverbank length (ft): 50 Width (ft): 10

Slope length (ft): _____ Sample Area (sf): 500

Plant Survivorship:

9 trees to meet 100% *8 trees to meet 80%*		*9 shrubs to meet 100%* *8 shrubs to meet 80%*

Trees	*Quantity (live)*	*Total*	*Shrubs*	*Quantity (live)*	*Total*
Black Willow			Red-osier Dogwood		
Silver Maple			Silky Dogwood	1	
Eastern Cottonwood			Winterberry Holly	IIII	
Box Elder			Chokecherry		
			Northern Arrowwood	IIII II	

Total Live Trees: _____ **Total Live Shrubs:** 8

Herbaceous Cover (%): _____

Invasive Plant Cover (%): _____

Meander Survey Comments (Use Additional Sheets As Necessary):

RIVERBANK, RE-VEGETATION MONITORING FIELD FORM

1.5 Mile Reach, GE/Housatonic River Site, Pittsfield, MA Page 24 of 24

Observer(s): 5/4/10 = Perhamus, Zayisek, Tagliaferro, Frank, LaCoy Date: 5/4/10

Phase: 4 Flow @ Coltsville (cfs)_____ Weather: Sunny, ~ 75°F ← 5/4/10

Planting Area Location: 48

Riverbank Length (ft): _____ Avg width (ft): _____

Planting Area (sf): 8,059 10-20% Area (sf): _____

Comments:

Random Sample Location Number: 4-E-3 Riverbank length (ft): 50 Width (ft): 10

Slope length (ft): _____ Sample Area (sf): 500

Plant Survivorship: *9 trees to meet 100%* / *8 trees to meet 80%* *9 shrubs to meet 100%* / *8 shrubs to meet* 8 ✓

Trees	*Quantity (live)*	*Total*	*Shrubs*	*Quantity (live)*	*Total*
Black Willow			Red-osier Dogwood		
Silver Maple			Silky Dogwood		
Eastern Cottonwood			Winterberry Holly	5	
Box Elder			Chokecherry	IIII 1	
			Northern Arrowwood	IIII	

Total Live Trees: _____ **Total Live Shrubs:** 11

Herbaceous Cover (%): _____

Invasive Plant Cover (%): _____

Meander Survey Comments (Use Additional Sheets As Necessary):

RIVERBANK, RE-VEGETATION MONITORING FIELD FORM

1.5 Mile Reach, GE/Housatonic River Site, Pittsfield, MA

Observer(s): 5/4/10 = Perhamus, Zapisek, Frank, LaLay, Tagliaferro Date: 5/4/10

Phase: 4 Flow @ Coltsville (cfs)_____ Weather: Sunny, ~75°F ← 5/4/10

Planting Area Location: 44

Riverbank Length (ft): _____ Avg width (ft): _____

Planting Area (sf): 4,792 10-20% Area (sf): _____

Comments:

Random Sample Location Number: 4-W-3 Riverbank length (ft): 74 Width (ft): 12

Slope length (ft): _____ Sample Area (sf): 888

Plant Survivorship: *15 trees to meet 100%, 12 trees to meet 80%* | *25 shrubs to meet 100%, 20 shrubs to meet 80%*

Trees	*Quantity (live)*	*Total*	*Shrubs*	*Quantity (live)*	*Total*
Black Willow			Red-osier Dogwood	𝍸 II	7
Silver Maple			Silky Dogwood	𝍸 I	5
Eastern Cottonwood			Winterberry Holly	𝍸 III	8
Box Elder			Chokecherry	IIII	4
			Northern Arrowwood	𝍸	5

Total Live Trees: _____ **Total Live Shrubs:** 29

Herbaceous Cover (%): _____

Invasive Plant Cover (%): _____

Meander Survey Comments (Use Additional Sheets As Necessary):

TABLE XX
Non-Riverbank Fred Garner Park (Areas: B, C,D and E) Shrub Count Summary
GE-Pittsfield/Housatonic River Project, 1.5 Mile Reach

Reach	Parcel ID	Quantity of Plants	Plant Type and Species	Common Name	Size/Stock	Comments	Monitoring Requirements	Maintenance Standard	Number of Live Shrubs
Pomeroy To Confluence	I7-1-101	23	*Cornus amomum*	Silky Dogwood	1-gal	Area B	2008 to 2011	80% (92 planted; Need 74 to meet 80% survival)	Σ=33
		23	*Viburnum dentatum*	Northern Arrowwood	1-gal	Area B	2008 to 2011		Σ=5
		23	*Ilex verticillata*	Winterberry Holly	1-gal	Area B	2008 to 2011		Σ=25
		23	*Prunus virginiana*	Chokecherry	1-gal	Area B	2008 to 2011	Σ=81	Σ=18
		17	*Cornus amomum*	Silky Dogwood	1-gal	Area C ^ and D	2008 to 2011	80% (65 planted; Need 52 to meet 80% survival)	Σ=15
		16	*Viburnum dentatum*	Northern Arrowwood	1-gal	Area C ^ and D	2008 to 2011		Σ=23
		16	*Ilex verticillata*	Winterberry Holly	1-gal	Area C ^ and D	2008 to 2011		Σ=22
		16	*Prunus virginiana*	Chokecherry	1-gal	Area C ^ and D	2008 to 2011	Σ=73	Σ=13
		37	*Cornus amomum*	Silky Dogwood	1-gal	Area E	2008 to 2011	80% (151 planted; Need 121 to meet 80% survival)	Σ=44
		38	*Viburnum dentatum*	Northern Arrowwood	1-gal	Area E	2008 to 2011		Σ=30
		38	*Ilex verticillata*	Winterberry Holly	1-gal	Area E	2008 to 2011		Σ=23
		38	*Prunus virginiana*	Chokecherry	1-gal	Area E	2008 to 2011	Σ=129	Σ=32

^ - Planting Areas located on Western Mass Electric Company (WMECO) Right of Away (ROW). WMECO requirements do not allow tree planting in ROW areas, therefore only shrubs were planted.